REMARKS

In response to the Office Action mailed March 31, 2008, the Examiner rejected claims 25-60 under 35 U.S.C. §101 as non-statutory subject matter; rejected claims 1-6, 9-14, 16-30, 32-42, 45-50, and 52-60 under 35 U.S.C. §103(a) as unpatentable over U.S. Application Publication No. 2004/0243560 to Broder et al. (Broder) in view of Moffat et al., "Self-Indexing Inverted Files For Fast Text Retrieval," February 1994, 1994 Australian Database Conference and 1994 IEEE Conference on Data Engineering ("Moffat").

By this Amendment, Applicant amends the specification in response to the rejection under 35 U.S.C. §101, amends claims 1, 15, 37, and 51 to more clearly recite the features of those claims; and cancels claims 25-36 without prejudice or disclaimer. Applicant submits that the specification supports these amendments (see, e.g., FIG. 3 and para. 0035).

Claims 1-6, 8-24, 37-42, and 44-60 are currently pending.

The Examiner rejected claims 1-6, 8-15, 16-31, 32-42, 44-60 under 35 U.S.C. §103(a) as unpatentable over Broder in view of Moffat. Applicant respectfully traverses this rejection.

Claim 1, as amended, defines a method for indexing documents in a collection of documents using skip entries, each document comprising one or more index terms. The method includes, among other things, "determining a first value x representative of a first location for inserting a first skip entry in an inverted index, such that x is determined as an integer corresponding to a quantity of documents including at least a majority of the index terms, wherein the first value x representing the first location for inserting the first skip entry is not the first posting of the inverted index." Claim 1 also includes "determining a second value y, where y does not exceed x, the second value y determined as an integer and representative of a second location for inserting a second skip entry in the inverted index, wherein y does not equal x, such that the first and second skip entries are provided at different intervals."

The Examiner concedes that Broder fails to teach skip entries. To cure that gap in Broder, the Examiner relies on Moffat. However, Moffat's teaches inserting a skip entry as the first posting rather than as the x^{th}, which is not the first posting of the inverted index. As such, Moffat's approach increases the size of the inverted index, as described at paragraph 0033 of the instant specification. Indeed, Moffat states:

> With skips over (say) every three pointers, the inverted list becomes a sequence of *blocks* of three pairs each, with skips separating the blocks. The example list corresponds to
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> $$\langle 5, a_2\rangle\langle 5,1\rangle\langle 3,1\rangle\langle 4,2\rangle\langle 13, a_3\rangle\langle 1,3\rangle\langle 2,1\rangle\langle 3,1\rangle\langle 23, a_4\rangle\langle 5,2\rangle\langle 5,1\rangle\langle 1,1\rangle\langle 40, a_5\rangle \ldots$$
>
> where a_2 is the address of the first bit of the second skip pair, a_3 is the address of the first bit of the third skip, and so on. This format still contains redundancy, in that both the list of document numbers in the skips and the list of bit addresses can be coded as differences, and the first document number in each set of three $\langle d, f_{d,t}\rangle$ values is now unnecessary. Incorporating these changes, the final inverted list becomes
>
> $$\langle 5, a_2\rangle\langle 1\rangle\langle 3,1\rangle\langle 4,2\rangle\langle 8, a_3 - a_2\rangle\langle 3\rangle\langle 2,1\rangle\langle 3,1\rangle\langle 10, a_4 - a_3\rangle\langle 2\rangle\langle 5,1\rangle\langle 1,1\rangle\langle 17, a_5 - a_4\rangle \ldots$$

Moffat, page 14. As such, Moffat fails to disclose at least the following feature of claim 1: "determining a first value x representative of a first location for inserting a first skip entry in an inverted index, such that x is determined as an integer corresponding to a quantity of documents including at least a majority of the index terms, wherein the first value x representing the first location for inserting the first skip entry is not the first posting of the inverted index." Accordingly, neither Broder nor Moffat, whether taken alone or in any reasonable combination, discloses or suggests this noted feature of claim 1. Therefore, the rejection under 35 U.S.C. §103(a) of claim 1 as well as claims 2-6 and 8-14, at least by reason of their dependency from independent claim 1, should be withdrawn.

Moreover, Moffat's skip entry would, at best, be consistent with conventional skip entries, which provide the skip intervals at fixed intervals rather than at different intervals. Indeed, Applicant acknowledges conventional fixed interval approaches at FIG. 1 of the instant

application (specification at para. 0031). Because Moffat discloses fixed intervals, Moffat fails to disclose or suggest at least the following aspect of claim 1: "determining a second value y, where y does not exceed x, the second value y determined as an integer and representative of a second location for inserting a second skip entry in the inverted index, wherein y does not equal x, such that the first and second skip entries are provided at different intervals." Accordingly, neither Broder nor Moffat, whether taken alone or in any reasonable combination, discloses or suggests this noted feature of claim 1. Therefore, the rejection under 35 U.S.C. §103(a) of claim 1 as well as claims 2-6 and 8-14, at least by reason of their dependency from independent claim 1, should be withdrawn for this additional reason.

Regarding claim 8, it depends from claim 1 and recites the following feature: "wherein x is selected from a first range of 256 to 512 and y is selected from a second range of 128 to 256, wherein y is not selected to have the same value as x." Paragraphs 0035-0038 of the specification describe that the selection of the claimed values "improves evaluation performance" while "minimizing the increase in index size due to skip entries." Moreover, Applicant submits that the placement of skip entries as specified by the ranges of claim 8 enable substantially all of the index terms (e.g., more than 90%) in "x" documents or fewer, which is clearly an aspect that is well beyond the level of ordinary skill.[1] Specification at para. 0034. Indeed, none of the cited references describes the benefit of this claimed feature, much less identify the problem. As such, the Examiner's allegation on page 23 of the Office Action that the claimed range does not "solve any stated problem" is incorrect, and it would not have been obvious to modify Broder and Moffat to operate over the claimed ranges. Claim 8 is thus

[1] See, e.g., M.P.E.P. 2144.05 § III "Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)."

allowable over Broder and Moffat, whether taken alone or in combination, and the rejection of claim 8 under 35 U.S.C. § 103(a) should be withdrawn for this additional reason.

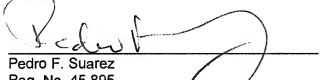
Claims 15, 37, and 51, although of different scope, includes features that are similar to those noted above for claim 1. Claims 16-24 depend from independent claim 15. Claims 38-42 and 44-50 depend from independent claim 37. Claims 52-60 depend from claim 51. For at least the reasons given above with respect to claim 1, claims 16-24, 37-42, 45-50, and 52-60 are allowable over Broder and Moffat, whether taken alone or in combination, and the rejection of those claims under 35 U.S.C. §103(a) should be withdrawn.

CONCLUSION

It is believed that all of the pending claims have been addressed in this paper. However, failure to address a specific rejection, issue or comment, does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above are not intended to be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below. No fee is believed to be due, however, the Commissioner is hereby authorized to charge any fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311, Reference No. 34874-165/2003P00147US.

Respectfully submitted,



Date: 30 June 2008

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